ABSTRACT

[1079] An integrated circuit for a modem processor includes processing units that are partitioned into "always-on" and "collapsible" power domains. An always-on power domain is powered on at all times. A collapsible power domain can be powered off if the processing units in the power domain are not needed. A power control unit within an always-on power domain powers down the collapsible power domains after going into sleep and powers up these domains after waking up from sleep. Tasks for powering down the collapsible power domains may include (1) saving pertinent hardware registers for these power domains, (2) freezing output pins of the IC to minimally disturb external units, (3) clamping input pins of the collapsed power domains, (4) powering down a main oscillator and disabling the oscillator clock, and so on. Complementary tasks are performed for powering up the collapsed power domains.